

PLG

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Tubing material welding of pipe, involves full circle welding of overlapping end part outer surface of larger pipe and periphery of smaller pipe while changing start position of overlay layer for every pass

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**Novelty:** A full circle welding is performed overlapping the end part outer surface of a large diametral pipe (1) and the periphery of a small diametral pipe (2) while changing the start position of overlay layers (7-10) for every pass in a direction deserting the larger pipe over a fillet weld (6) formed between the end (C) of the larger pipe and periphery of the smaller pipe.

**Detailed Description:** The small pipe is inserted into the large pipe and the end of the large pipe and the periphery of the small pipe are temporarily fixed by a seal weld layer (5) and the fillet weld is formed while performing a fluid cooling by passing a fluid inside both the pipes. An INDEPENDENT CLAIM is also included for existing pipe joint part repair method.

**Use:** For welding an end of a larger pipe to the periphery of a smaller pipe and repairing an existing pipe joint.

**Advantage:** The residual compression stress is equalized over the whole circumference inside the pipe joint by forming a full circle welding while changing a start position of weld bead in the overlay layers for every pass in a direction of deserting the large pipe over the fillet weld formed between the end of the large pipe and periphery of the small pipe. The weld distortion and stress corrosion crack in the tubes by division of the fillet welded joint during the flow of a high temperature high pressure fluid inside the pipeline can be avoided. The reliability of the pipeline can be improved.

**Description of Drawing(s):** The figure shows the fragmentary sectional view of the welding method for welding tubes.

Large diametral pipe 1

Small diametral pipe 2

Seal weld layer 5

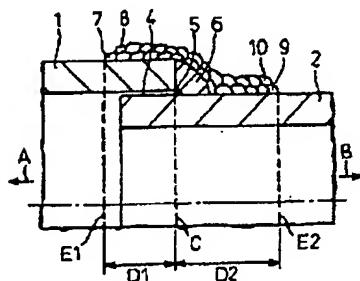
Fillet weld 6

Overlay weld layers 7-9,10

End of larger pipe C

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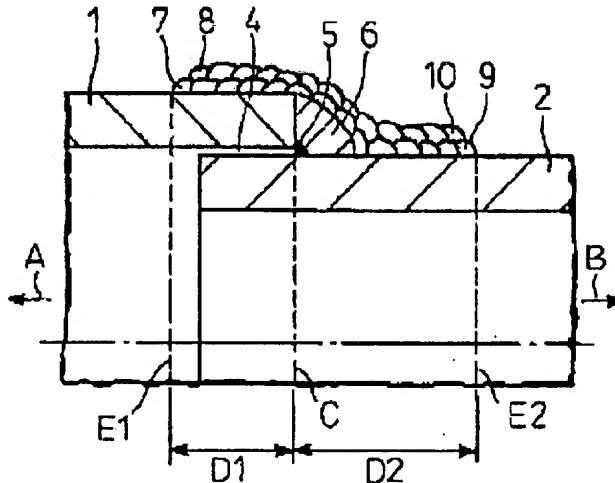
## TUBE WELDING METHOD AND REPAIR METHOD FOR EXISTING TUBE JOINT PART

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### Abstract of JP2000254777

**PROBLEM TO BE SOLVED:** To avoid a crack of a fillet weld joint and a stress corrosion crack of a tube joint part. **SOLUTION:** After a seal weld layer 5 adhering to the end face C of a large diameter tube 1 and the outer face of a small diameter tube 2 is formed, a cooling fluid is caused to flow to the insides of both tubes 1, 2. A fillet welded joint 6 connecting the large diameter tube 1 and the small diameter tube 2 is formed. Cladding by welding layers 7, 8 to the end face C outer face of the large diameter tube 1 is successively formed so as to overlap adjacent weld beads by whole peripheral welding and to change the start position of whole peripheral welding at each pass in the direction apart from the fillet weld joint 6. Cladding by welding layers 9, 10 is successively formed to the outer face of the fillet weld joint 6 and the end part outer face of the small diameter tube 2 so as to overlap adjacent weld beads by whole peripheral welding and to change the start position of whole peripheral welding at each pass in the direction apart from the large diameter tube 1. A compression residual stress field is evenly generated to the whole periphery of the joint inner face of both tubes 1, 2.



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